

CLAIMS

1. (Amended) A transflective liquid crystal display
5 comprising

a liquid crystal [cell] (38) disposed between a
front substrate (40) and a rear substrate (36),

a front polariser (46) located in front of the
front substrate and rear polariser (32) located behind
10 the rear substrate,

a front retarder (42,44) located between the front
substrate and the front polariser, and

a rear retarder (62,64) located between the rear
substrate and the rear polariser, and addressing means
15 for addressing each pixel and switching each pixel
between different states resulting in different levels
of transmission of light through the display,
characterised in that

a light source (30) is located behind the rear
20 polariser, and

the liquid crystal display is provided with a rear
electrode which is partially reflective and partially
transmissive and the liquid crystal is divided into a
plurality of pixels.

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2. (Maintained) A transflective display as claimed in
claim 1 wherein the front retarder is an achromatic
combination retarder.

30 3. (Maintained) A transflective display as claimed in
claim 1 or 2, wherein the front retarder comprises a
front halfwave plate and a front quarterwave plate.

4. (Amended) A transflective display as claimed in claim
3, wherein the front quarterwave plate has a slow axis
substantially parallel or normal to a bisetrix of
5 surface alignment directions of the liquid crystal, such
that a retardation [that] of the front quarterwave plate,
in conjunction with the retardation of the liquid
crystal [layer], produces in one state circular
polarised light after a single pass.

10 5. (Amended) A transflective display as claimed in claim
3 or 4, wherein the front quarterwave plate has a slow
axis substantially parallel or normal to a bisetrix of
surface alignment directions of the liquid crystal, such
15 that a retardation [that] of the front quarterwave plate,
in conjunction with the retardation of the liquid
crystal [layer], produces in a second state linear
polarised light after a single pass.

20 6. (Amended) A transflective display as claimed in claim
3, 4 or 5, wherein the front quarterwave plate has a
retardation of [between 0 nm and] 50nm and 250 nm.

25 7. (Maintained) A transflective display as claimed in
any preceding claim, wherein the rear retarder comprises
a rear quarterwave plate.

8. (Amended) A transflective display as claimed in claim
7, wherein the rear quarterwave plate has a slow axis
30 substantially parallel or normal to a bisetrix of
surface alignment directions of the liquid crystal, such
that a retardation [that] of the rear quarterwave plate,

in conjunction with the retardation of the liquid crystal [layer] and the front quarterwave plate, produces in one state circular polarised light after a single pass.

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9. (Amended) A transflective display as claimed in claim 7 or 8, when also dependent, directly or indirectly, on claim 3, wherein the rear quarterwave plate has a slow axis substantially parallel or normal to a bisetrix of surface alignment directions of the liquid crystal, such that a retardation [that] of the rear quarterwave plate, in conjunction with the retardation of the liquid crystal [layer] and the front quarterwave plate, produces in a second state linear polarised light after a single pass.

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10. (Maintained) A transflective display as claimed in claim 7, 8 or 9, wherein the rear quarterwave plate has a retardation of between 100nm and 180nm.

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11. (Maintained) A transflective display as claimed in any preceding claim, wherein the rear substrate is provided with a partially reflective and partially transmissive mirror.

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12. (Cancel)

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13. (Maintained) A transflective display as claimed in any preceding claim, wherein the rear retarder further comprises a rear halfwave plate.

14. (Maintained) A transflective display as claimed in claim 13, when also dependent directly or indirectly on claim 6, wherein the rear halfwave plate is located between the rear quarterwave plate and the rear polariser.

15. (Amended) A transflective display comprising a liquid crystal divided into a plurality of pixels, addressing means for addressing each pixel and swithing each pixel between different states resulting in different levels of transmission of light through the display, a flashing backlight located behind the liquid crystal, and a partially reflective mirror located between the liquid crystal and the backlight for both reflecting ambient light back through the liquid crystal and allowing transmission of light from the backlight through the liquid crystal, characterised in that each pixel is provided with a light filter (82), and the backlight comprises a plurality of sequentially flashing light sources (102, 104, 106).

16. (Maintained) A transflective display as claimed in claim 15, wherein each light filter is a colour light filter, and wherein said sequentially flashing light sources are of different colours.

17. (Maintained) A transflective display as claimed in claim 16, wherein said liquid crystal is part of an active matrix display.

18. (Maintained) A transfective display as claimed in claim 15, 16 or 17, wherein the liquid crystal forms a Pi or OCB cell.

5 19. (Amended) A transfective display as claimed in any one of claims 15 to 18, wherein each said sequentially flashing light source is a light emitting diode (LED).

10 20. (Maintained) A transfective display as claimed in any one of claims 16 to 19, wherein each colour filter provides a varying level of absorption across its area.

15 21. (Maintained) A transfective display as claimed in claim 20, wherein each colour filter has a transparent region.

20 22. (Maintained) A transfective display as claimed in claim 21, wherein said liquid crystal is provided with a plurality of partially reflective electrodes each having a light transmissive area, and wherein each said transmissive area is optically aligned with a transparent region of one of said colour filters.

25 23. (Maintained) A transfective display as claimed in any one of claims 15 to 22, which also has any or all of the features of the transfective display of claims 1 to 14.

30 24. (Cancel)

25 25. (Added) A transfective display as claimed in any one of claims 11 and 15 to 24, wherein said partially

reflective and partially transmissive mirror comprises a plurality of gaps or holes.

26. (Added) A transflective display as claimed in any
5 one of claims 11 and 15 to 25, wherein said partially reflective and partially transmissive mirror is a mirror transparent to a predetermined value between 10 and 90%.

27. (Added) A transflective display as claimed in any
10 one of claims 16 to 26, wherein for transmission, transflective and reflection modes of the transflective display a voltage level for each said different colour is individually adjusted.

28. (Added) A transflective display as claimed in any
15 one of claims 1 to 27 wherein said front and rear polarisers are parallel polarisers.

29. (Added) A transflective display as claimed in any
20 one of claims 1 to 27, wherein said front and rear polarisers are crossed polarisers.

30. (Added) A transflective display as claimed in anyone
25 of claims 1 to 29, in which the effective retardation of the nematic CL is continuously switchable, and, the two front retarders function together as an achromatic combination rotarder.

31. (Added) A transflective display as claimed in anyone
30 of claims 1 to 29, in which the effective retardation of the nematic CL is continuously switchable, and, the two

rear retarders function together as an achromatic combination rotarder.

32. (Added) A transreflective display as claimed in any
5 one of claims 1 to 29, in which the front quarter wave plate has its slow axis substantially normal or parallel to the bisectrix of the surface director orientations of the nematic LC, and the two front retarders form an achromatic combination retarder, and the combination
10 retarder is modified to compensate for the residual retardation of the LC at finite voltages.

33. (Added) A transreflective display as claimed in any
15 one of claims 1 to 29, in which the rear quarter wave plate has its slow axis substantially normal or parallel to the bisectrix of the surface director orientations of the nematic LC, and the two rear retarders form an achromatic combination retarder, and the combination
20 retarder is modified to compensate for the residual retardation of the LC at finite voltages.

34. (Added) A transreflective display as claimed in any
one of claims 1 to 29, which the nematic LC has antiparallel surface director orientation with surface
25 pretilt, and the front substrate functions as a colour filter plate.

35. (Added) A transreflective display as claimed in any
one of claims 1 to 29, which the red, green and blue
30 voltage levels are individually adjusted for transmission, transreflective or reflection modes, and the transmission/reflection against voltage curve is

wavelength dependent and is different between the reflective and the transmissive mode.

36. (Added) A transflective display as claimed in any of
5 claims 15 to 29, in which the nematic LC has substantially parallel surface director orientations .

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36. (Added) A transflective display as claimed in claim
35, in which the nematic LC is formed from a Pi cell.

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